

Appl. No. 10/666,188  
Amdt. Dated 19 April 2005  
Reply to Office action of 21 January 2005

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of the Claims:**

1-35. (cancelled)

36. (currently amended) A radiation imaging system comprising :

a movable radiation source;

a radiation detector;

a collimator comprising an adjustable geometry aperture assembly;

a collimator positioning apparatus configured to synchronize an adjustment of the geometry of an aperture geometry with the movement of said radiation source and to coordinate the adjustment of the geometry of the aperture geometry with the radiation source position so as to limit the incident radiation to a predetermined exposure area at said detector.

37. (original) The imaging system of Claim 36, wherein said aperture assembly is configured for adjusting at least one of the position of the aperture and the shape of the aperture.

38. (canceled)

39. (original) The imaging system of Claim 36, wherein said aperture assembly comprises a plurality of movable sides.

40. (original) The imaging system of Claim 36, wherein said aperture assembly comprises at least one movable side.

41. (original) The imaging system of Claim 36, wherein said aperture assembly comprises multiple independently positionable sections with different boundary shapes.

42. (original) The imaging system of Claim 41, wherein said multiple sections have linear boundaries.

43. (original) The imaging system of Claim 39, wherein said plurality of sides comprise rotationally and translationally movable sides.

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44. (previously presented) A method for radiation imaging, comprising:  
moving a radiation source in a plurality of radiation source positions;  
adjusting an aperture by synchronizing the aperture geometry adjustment with the movement of said radiation source and coordinating at least one of the position and the shape of said aperture with the respective position of said radiation source such that a radiation beam emanating from said radiation source is collimated to limit the incident radiation to a predetermined exposure area at a radiation detector; and  
detecting the radiation beam on the radiation detector.

45. (currently amended) A tomosynthesis system comprising :  
a movable radiation source;  
a radiation detector;  
a collimator comprising an adjustable geometry aperture assembly configured such that an adjustment of the geometry of an aperture geometry is synchronized in time with respect to a movement of said radiation source and coordinated in space with respect to the radiation source position so as to limit the incident radiation of the tomosynthesis system to a predetermined exposure area at said detector.

46. (currently amended) The ~~imaging~~ tomosynthesis system of Claim 45, wherein said aperture assembly is configured for adjusting at least one of the position of the aperture and the shape of the aperture.

47. (currently amended) The ~~imaging~~ tomosynthesis system of Claim 45, further comprising a collimator assembly comprising a collimator positioning apparatus for positioning said collimator.